



Cinemedicine: Using movies to improve students' understanding of psychosocial aspects of medicine



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ABSTRACT

Background: There are rising concerns about how to teach psychosocial aspects of medicine to students. The aim of the study was the use of “cinemedicine” as a tool and technique in teaching psychosocial aspects of medicine to medical students at Tehran University of Medical Sciences (TUMS).

Methods: This was an educational study with quantitative and qualitative data analysis. Two hundred seventy medical students participated in this study. Nine sessions were held to teach psychosocial subjects in medicine using movies. Each session began with an initial explanation of the program objectives. After the show, medicine related points of the movie were discussed and analyzed by experts and students. In the end, questionnaires were distributed to assess the students' perceptions.

Results: The results of our study show that most of the students (84%) stated that teaching these subjects through movies was a nice event comparing to usual lectures. 56.5% of the students agreed with the application of points learned in the events in professional performance. The majority of the students (72.8%) agreed that participating in those events was useful for them as a physician and they would advise other students to attend to later sessions. Content analysis of the students' notes uncovered three categories of cinemedicine: “learning by observation”, “creation of a supportive and tangible learning” and “motivation for learning”.

Conclusion: Cinemedicine provides the opportunity for medical students to learn psychosocial subjects related to medicine through observing and reflecting on movies.

1. Background

Along with the shift toward reforming medical curricula, there are rising concerns about maintaining professional values of future physicians and how humanistic and psychosocial aspects of medicine can be taught and improved during their education [1–3]. Undoubtedly, addressing these concerns requires providing opportunities for medical students to learn about humanity from the medical perspective. Hence, many medical schools around the world have started to pay more attention to helping students to build a humanistic perspective of doctoring as necessary competencies for becoming a good physician [4–6]. Humanism, known as the art of medicine, can be defined as a system of

values, attitudes, and behaviors that act as the basis of the physician's contract with patients and the way of integrating the psychosocial with the biomedical aspects of care [1,7]. Those doctors who practice humanistic care, show respect for every single patient and address their values, concerns, and needs [7].

It is obvious that reaching out for all aspects of humanity and psychosocial subjects cannot be achieved with the formal curriculum as a certain module and in a limited time frame. Although it is difficult to teach such topics due to their complexity, they need to be taught anyway [8]. This involves not only to use suitable knowledge and skill, but also a change of students attitudes [9] where conventional teaching methods are less likely to meet the expected outcomes.

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Table 1
The details on selected movies.

Movies	Year	Genre	The story
The doctor	1991	Drama	The Doctor is loosely based on Dr. Edward Rosenbaum's 1988 book, <i>A Taste Of My Own Medicine</i> . The film stars William Hurt as Jack MacKee, a doctor who undergoes a transformation in his views about life, illness and human relationships.
Something the Lord made	2004	Drama	Something the Lord Made is a film about the black cardiac pioneer Vivien Thomas and his complex and volatile partnership with white surgeon Alfred Blalock, the world famous “Blue Baby doctor” who pioneered modern heart surgery.
The brain (Hangul)	2011	medical drama	The brain, is a South Korean medical drama, revolves around a top neurosurgeon who is obsessed with success and dreams of becoming the hospital director, then finds himself embroiled in professional rivalries and an unexpected romance
The physician (Der Medicus)	2013	drama, historical, adventure	The film focuses on an orphan from an 11th-century English town whose mother died of a mysterious illness. The boy vows to study medicine and decides to travel to Persia.
Sicko	2007	Documentary	Documentary film by American filmmaker Michael Moore; investigates USA focusing on its health insurance and pharmaceutical industry, comparing the for-profit, non-universal U.S. system with the non-profit universal health care systems of Canada, UK, France & Cuba.
Today	2014	Drama	Today is an Iranian drama film. The film focuses on a retired taxi driver who will help a pregnant woman at the end of a working day to reach the hospital. Unaware that there are many things in the hospital waiting for him.
Still Alice	2014	Drama	Still Alice is an American independent drama film. The film stars Julianne Moore as Alice Howland, a linguistics professor diagnosed with familial Alzheimer's disease shortly after her 50th birthday.
Bubble boy	2001	Drama	A young man who was born without an immune system and has lived his life within a plastic bubble in his bedroom finds out that the woman he has loved since childhood is about to be married at Niagara Falls, so he builds a portable bubble suit and ventures into the outside world to win her affections.
Patch Adams	1998	Comedy drama	It is a comedy-drama film starring Robin Williams. Directed by Tom Shadyac, it is based on the life story of Dr. Hunter “Patch” Adams and the book <i>Gesundheit: Good Health is a Laughing Matter</i> by Adams and Maureen Mylander.

Evidences shows that it is very efficient to use interactive teaching techniques such as cinemedicine, which means using movie clips or screening whole movies for educating residents and medical students in the psychosocial aspects of medicine [10,11] [12]. The use of cinemedicine is useful in both building a humanistic perspective of doctoring and increasing students' motivation, engagement, and learning [13–15]. Furthermore, cinemedicine has unique features that make it an excellent tool for reinforcing professionalism, ethical issues, communication skills, and etc. [16,17].

This study reports our experience in using “cinemedicine” as a tool to facilitate teaching of psychosocial aspects of health care as part of an undergraduate medical curriculum at Tehran University of Medical Sciences (TUMS). The aim of this study was to determine if undergraduate medical education competencies as listed in TUMS [18] can be found in movies; and to propose a template for teaching by these movies. The study aim is to provide a model of how movies could be fitted into a framework of competencies of undergraduate medical education.

2. Materials and methods

2.1. Study context

In 2011, Tehran University of Medical Sciences alongside the reform of the undergraduate medical curriculum considered reinforcing psychosocial aspects of health care in terms of the expected competencies that medical students will be involved with throughout their educational course. It defines eight main competencies of undergraduate medical education: “clinical skills”, “communication skills”, “patient management”, “personal development”, “professionalism and medical ethics”, “decision-making, reasoning and problem-solving”, “prevention and health promotion” and “role of the physician in healthcare system”. Building and reinforcement of these competencies is not easily achieved; several interactive teaching techniques such as using movies, paintings, and other artistic works have been used in reforming undergraduate medical curriculum at TUMS. Art and Media in Medical Education Office (AMMEO) with the objective of helping to teach psychosocial subjects related to medicine was established in 2012 at Tehran University of Medical Sciences (TUMS). This office planned and implemented different activities by using art and media for teaching professionalism, ethics, communication, psychology, and clinical skills,

etc., as an optional program for students.

2.2. Participants

This was an educational study carried out from February 2013 to June 2015. Two hundred seventy medical students of TUMS participated in this study. Sixty-eight percent of respondents were female and 93% were single.

2.3. Course design

This project is an extracurricular experience that has been held by Art and Media in Medical Education Office (AMMEO) for 3 years. We describe our experiences in use of cinemedicine for teaching psychosocial aspects of medicine as an optional course. We invited faculty members who have expertise and interest in this field as the expert panel. Next, the taskforce conducted a survey to identify a series of movies related to ethical, social, and psychological issues related to medicine. We asked the experts to provide us with a list of suggested movies. The movie was chosen by the following criteria [1]: The main theme of each movie was medicine [2] All of the movies contained several aspects of professional behaviors [3] The content of each movie pertained to knowledge that students learned in their formal course [4] It stimulated discussion and reflection. In the following phase, the authors watched the suggested movies and wrote a short outline of each one. Based on the expected goals and specified timetables, different programs were planned and implemented. The specific movie for each session was chosen according to the topic of each session.

2.4. Procedure

After the survey by the working group, nine movies with bio psychosocial issues of medicine such as; *the doctor*, *Something the Lord made*, *the brain*, *the physician*, *Sicko*, *Today*, *Bubble boy*, *Patch Adams*, and *Still Alice* were screened for each sessions (Table 1).

The movies contain many scenes that highlight different aspects of being a good physician (Table 2). Nine sessions were held for teaching psychosocial subjects related to medicine using movies separately. The duration of each session varied from 3 to 4 h. Since most of the students were not familiar with using movies as a teaching tool, the first step was

Table 2
The selected movies according to teaching Biopsychosocial topic.

Movies	The key topics in the corresponding Biopsychosocial Topics
The doctor	Medical professionalism, Breaking bad news, Managing terminal illnesses, Empathy, Patient's autonomy, Providing holistic care, Palliative care, life of medical personnel.
Something the Lord made	Modern heart surgery, History of care of cyanotic congenital heart defect, Innovation and creativity in medicine, Ethical issue in animal researches, Medical professionalism, Team work in medicine, Medical partnership in revolutionized pediatric cardiac surgery, Intellectual property rights.
The brain (Hangul)	Palliative care, Empathy, Stress management, Breaking bad news, End of life care, Ethical issues in palliative care, Grief and bereavement, Futility, Comfort care.
The physician (Der Medicus)	History of medicine, Basics of scientific medicine, Role of Avicenna in modern medicine, Historical falsification in medicine in Persia and role of historians.
Sicko	Services within the health care system, Health insurance, The pharmaceutical industry, Conflict of interest, Non-profit universal health care systems, Equity in health, Health policy and ethics, National Health Service.
Today	Managing conflicts, Communication skills, Prejudgment, The bleak social reality and responsibility, Medical professionalism, Empathy, Importance of social infrastructure and civil rights to support women, dramatic moments of life and appreciation of spiritualism, tragedy and hope.
Still Alice	The role of doctor in managing Alzheimer, Ethics in mental illness, Importance of severe mental illness on family, Neuroscience and ethics, Genetics and ethics, Early-onset diagnoses of Alzheimer, Quality of life, Loss of intellectual capabilities, Emotional connection with the family, Natural history of Alzheimer, Human dignity and severe mental illness.
Bubble boy	Human right in childhood, Ethics in medical care, paternalism in medicine, History of Severe Combined Immunodeficiency, Futility, Telling the truth to the patient by medical staff.
Patch Adams	Human being, Holistic care, Humanized medicine, sense of humor in medicine, Medical education, New look at the patients, Clown physicians, Empathy, Quality of life, of Humanity and dignity, Importance of listening to the patients.

to introduce the context to them. Hence, at the beginning of the session, students received an initial explanation of the program objectives, highlights of the feature movie and the golden educational points (15 min). This helped to create a receptive and informed learning environment.

Next, medical students viewed movies chosen to portray different elements of medical practice. After the show (90 min), ethical issues related to medicine addressed in the movie were discussed and analyzed by experts and students who participated at the session (60–90 min). A faculty member led group discussion emphasizing argumentation and questioning. During each session, we also provided the opportunity for students to engage in group discussions and reflect on the movie and state what they had learned. At the end of the programs, the moderator summarized the educational tips (15 min).

2.5. Instrument

The questionnaire asked 11 questions regarding the students' perceptions of the program. A 5-point Likert scale was used to measure attitudes of medical students. A 5-point response scale was selected to allow a reasonable distribution of responses. The options were “completely agree,” “agree,” “no idea,” “disagree” and “completely disagree”. At the end of the questionnaire, an open-ended question was provided for students to reflect on any aspect of the cinemedicine. Five experts were asked to evaluate the questionnaire to establish content and gain validity. They commented on any item they found ambiguous or difficult to understand. The questionnaire homogeneity was high with a Cronbach's alpha of 0.73. After that, the data were analyzed by SPSS software using descriptive statistics. The content analysis was used to analyze the students' attitudes about their experiences on the open-ended question.

2.6. Ethical considerations

Questionnaires were distributed among the students anonymously and their participation was voluntary.

3. Results

270 students of TUMS participated in this study. Sixty-one percent of participants returned the questionnaire. The results of our study showed that most of students (85.5%) believed that joining the events

was a good experience for them. Regarding application of points learned in the events in professional performance, 56.5% strongly agreed/agreed and 37.5% did not agree or disagree.

In general, 82.8% of students strongly agreed/agreed that they could gain new insights into humanistic perspective of doctoring through watching movie and discussing about points. 86.3% of participants felt that participation in this session had helped them to learn more about many important aspects of medicine. In addition, 63.3% of students mentioned that discussion during the session could help them to share their perception with others. Generally, the majority of the students (72.8%) strongly agreed/agreed that participation in these events was useful for them as a physician and they would advise other students to attend in later sessions. Most of the students (84%) said that teaching via movies was a nicer event than usual lectures. Details of students' responses to post-course survey are presented in Table 3.

Content analysis of the students' notes uncovered three main themes of cinemedicine: “Learning by observation”, “Creation of a supportive and tangible learning” and “Motivation for learning”.

Cinemedicine provides the opportunity for medical students to learn via observing and reflecting on movies. Most students reported that the cinemedicine enhanced their understanding of medical knowledge and skills by observation and helped them to integrate it into practice.

One participant said that:

“By observing the events in the movie, I could have a clear picture of the medical practice. [...] what duties should be done as a doctor, for example, when the patient has cancer and he is in the final stages of his life ...” (Male fourth-year student)

Students stated that observation and reflection played a key role in their learning from cinemedicine.

“I constantly reflected on what I was seeing ... I learned from watching the movie that what medical practice really is in crisis, how difficult it is for doctors to fulfill their tasks as a team in critical situations! While in class, I did not realize this truth” (Female second-year student)

From the students' perspectives, it [cinemedicine] has led to learn subjects in a more perceptible and tangible way. One of the students mentioned this:

“It was really interesting ... the things that I studied ... could see in a tangible way ...” (Female Third-year student)

Furthermore, the way the moderator managed the sessions led to

Table 3
Results of the survey of medical students on attitudes related to movies sessions.

Items	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Participation in the movie sessions was a good experience for me	55.3	30.2	7.7	4.5	2.3
The movie session was useful for me as a doctor.	31.6	57.4	6.2	4.8	0
The movie session can help me to apply learned points in professional performance	22.4	34.1	37.5	3.8	2.2
The movie session was useful in gaining new insights into humanistic perspective of doctoring	40.1	42.7	11.3	3.9	2
The movie session can help me to learn more about many important aspects of medicine	42.1	44.2	9.7	4	0
The movie session will make me a more humanistic physician	38.9	42	13.4	3.6	2.1
The movie session can change the way I watch films	20.8	47.5	22.4	5.6	3.7
The movie session can help me to be a better doctor	24.3	58.3	6.7	9.2	1.5
I will suggest other students to attend in the later movie sessions	51.3	21.5	15.6	8.6	3
Teaching via movies was a nicer event than the usual lecture	54.9	29.1	6.7	5.8	3.5
Discussion during the movie session can help me to share my perceptions	24.9	38.4	6.1	20.1	10.5

the creation of a supportive, learning environment in which the students shared their experiences with each other.

“Beyond the medical knowledge and skills that were tried to discuss during the movie session, we have spoken about the psychological and social aspects of medicine and have shared our experiences.” (Male fourth-year student)

The way of running movie session influences the students' learning and motivation. Most participants believed that their motivations towards learning medicine had increased after participating in movie sessions.

“As a result of watching movies on their course, our motivation towards medicine as a profession got stronger.” (Male Third-year student)

4. Discussion

Since no single method of teaching is sufficient, being successful in medicine requires all of comprehensive competencies. In this article, we describe our experience in teaching psychosocial aspects of medicine through applications of movies at Tehran University of Medical Sciences. Although there are some studies using movies in medical education, but there is no report regarding teaching different aspects of medicine to students in the early years of curriculum. To the authors' best knowledge; there have never been any studies that deal with the use of movies in teaching a wide range of bio-psycho-social themes of medicine as a whole. Most articles usually address each topic separately [13,19]. Furthermore, in our article, we tried not only to describe the proposed method of selecting and conducting movie sessions, but also to demonstrate content areas for teaching bio-psycho-social topics in each movie. The described process in this paper shows how movies can be used as a teaching tool to facilitate learning many important aspects of medicine.

The use of the cinemedicine as a teaching tool has been popular in medical education [20,21]. Derbyshire et al. believe that movies stimulate discussions and reflections, which is a part of an active learning process [22]. Therefore, we decided to apply this approach for the following reasons. We believe that cinemedicine might be more interesting to medical students than conventional teaching. Second, using movies for teaching can provide simulacra of tangible physician experiences to students [23].

Based on the results of our study, applying movies as an instructional medium in teaching medical humanism is useful. One of the valuable results of our study is that watching movies and discussing about them has led to meaningful learning about many important aspects of medicine. This enables students to gain new insights into humanistic perspective of doctoring. It also accords with our earlier studies, which showed that using movies can address the human aspects of medicine that enhance good doctoring [17,24].

The students stated that through participating in the movie session,

they had the opportunity to discuss and express their perceptions about humanistic values and behaviors of a good physician. This, again, can help students to share their views with others. These findings further support the idea of using movies to generate group discussion and exchange ideas [10,17]. In fact, group discussions after the movies, lead medical students to have the opportunity to translate movie stories into their own practice and to describe their personal experiences within their clinical encounters [14,24].

Most of the students believed that they could grasp the core points from the movies and it could enhance their knowledge. With such interactive instructional medium, students could understand that having the art of medicine is more than merely possessing medical knowledge. In addition, we found that teaching through movies was a more exciting experience than conventional teaching for medical students. This finding is alongside Blasco's findings which showed using movies was a valuable and enjoyable way of teaching [6]. Students also acknowledged that this program had helped them to increase their motivation to learn and they would advise their peers to participate in future sessions, which correlated with the study conducted by Ventura et al. [25]. This study demonstrates that medical schools can enhance humanistic perspective of doctoring in medical students through the cinemedicine.

Several factors can influence medical students' attitude, which makes it difficult to investigate the influence of movies. The major limitation of our study is that we assessed students' attitudes only after they participated in the movie sessions. There is no evidence on the improvement of students' understanding of psychosocial aspect of medicine besides the feeling reported by students themselves. A stronger scenario to test improvement of students' understanding of the psychosocial aspect of medicine would have been to ask questions about that both before and after the cinemedicine session. Furthermore, while we have shown the views of medical students about this approach, we have not done research to test the hypothesis that says points learned from these sessions are easy to apply in real practice.

5. Conclusion

Our experience demonstrates that using movies can be helpful as an interactive teaching technique to teach medical humanism in medical school. Cinemedicine provides the opportunity for medical students to learn psychosocial subjects related to medicine through observing and reflecting on movie.

Ethical approval

The Ethics committee of Tehran University of Medical Sciences (TUMS) reviewed and approved the study (code: 76-32863).

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Author contribution

Maliheh Kadivar: idea generation, study design, data gathering, revising the manuscript.

Mahboobeh Khabaz Mafinejad: study design, data gathering and analysis, writing and revising the manuscript.

Javad Tavakkoly Bazzaz: data gathering.

Azim Mirzazadeh: study design.

Zeinab Jannat: data gathering.

Conflicts of interest

The authors declared no conflict of interests.

Guarantor

Mahboobeh Khabaz Mafinejad.

Registration of research studies

This is an educational study and the patient didn't involve in this research.

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References

- [1] G.C. Newell, D.J. Hanes, Listening to music: the case for its use in teaching medical humanism, *Acad. Med.* 78 (7) (2003) 714–719.
- [2] E.D. Pellegrino, Professionalism, profession and the virtues of the good physician, *Mt. Sinai J. Med.* 69 (6) (2002) 378–384.
- [3] B.D. Rowley, D.C. Baldwin Jr., R.C. Bay, M. Cannula, Can professional values be taught? a look at residency training, *Clin. Orthop. Relat. Res.* 378 (2000) 110–114.
- [4] J. Shapiro, L. Rucker, D. Robitshek, Teaching the art of doctoring: an innovative medical student elective, *Med. Teach.* 28 (1) (2006) 30–35.
- [5] J. Ousager, H. Johannessen, Humanities in undergraduate medical education: a literature review, *Acad. Med.* 85 (6) (2010) 988–998.
- [6] P.G. Blasco, Literature and movies for medical students, *Family Med. Kansas City* 33 (6) (2001) 426–427.
- [7] D.E. Kern, W.T. Branch Jr., J.L. Jackson, D.W. Brady, M.D. Feldman, W. Levinson, et al., Teaching the psychosocial aspects of care in the clinical setting: practical recommendations, *Acad. Med.* 80 (1) (2005) 8–20.
- [8] D.T. Stern, J.J. Cohen, A. Bruder, B. Packer, A. Sole, Teaching humanism, *Perspect. Biol. Med.* 51 (4) (2008) 495–507.
- [9] Z. Klemenc Ketiš, I. Švab, Using movies in family medicine teaching: a reference to EURACT Educational Agenda, *Slovenian J. Public Health* 56 (2) (2017) 99–106.
- [10] M. Alexander, The doctor: a seminal video for cinemeducation, *Fam. Med.* 34 (2) (2002) 92–94.
- [11] M. Alexander, P. Lenahan, A. Pavlov, *Cinemeducation: a Comprehensive Guide to Using Film in Medical Education*, Radcliffe Publishing, 2005.
- [12] N. Lumlertgul, N. Kijpaisalratana, N. Pityaratstian, D. Wangsaturaka, Cinemeducation: a pilot student project using movies to help students learn medical professionalism, *Med. Teach.* 31 (7) (2009) e327–e332.
- [13] Z. Klemenc-Ketiš, J. Kersnik, Using movies to teach professionalism to medical students, *BMC Med. Educ.* 11 (1) (2011) 60.
- [14] P.G. Blasco, D.S. Garcia, M.A.C. de Benedetto, G. Moreto, A.F. Roncoletta, T. Troll, Cinema for educating global doctors: from emotions to reflection, approaching the complexity of the Human Being, *PrimaryCare* 10 (3) (2010).
- [15] M. Alexander, A. Pavlov, P. Lenahan, Lights, camera, action: using film to teach the ACGME competencies, *Family Med. Kansas City* 39 (1) (2007) 20.
- [16] R.O. Winter, B.A. Birnberg, Teaching professionalism artfully, *Fam. Med.* 38 (3) (2006) 169–171.
- [17] P.G. Blasco, G. Moreto, A.F. Roncoletta, M.R. Levites, M.A. Janaudis, Using movie clips to foster learners' reflection: improving education in the affective domain, *Family Med. Kansas City* 38 (2) (2006) 94.
- [18] A. Mirzazadeh, S.M. Hejri, M. Jalili, F. Asghari, A. Labaf, M.S. Siyahkal, et al., Defining a competency framework: the first step toward competency-based medical education, *Acta Med. Iran.* 52 (9) (2014) 710.
- [19] C. Gramaglia, A. Jona, F. Imperatori, E. Torre, P. Zeppegno, Cinema in the training of psychiatry residents: focus on helping relationships, *BMC Med. Educ.* 13 (1) (2013) 90.
- [20] D. Darbyshire, P. Baker, A systematic review and thematic analysis of cinema in medical education, *Med. Humanit.* 38 (1) (2012) 28–33.
- [21] J.C. Sánchez, J.C. Gutiérrez, M.D. Morales, Cinema and theater as training tools for health students, *Fam. Med.* 42 (6) (2010) 398–399.
- [22] D. Darbyshire, P. Baker, A systematic review and thematic analysis of cinema in medical education, *Med. Humanit.* (2012) medhum-2011–010026.
- [23] A.H. Shevell, A. Thomas, A. Fuks, Teaching professionalism to first year medical students using video clips, *Med. Teach.* (2014) 1–8.
- [24] S. Quadrelli, H.G. Colt, G. Semeniuk, Appreciation of the aesthetic: a new dimension for a medicine and movies program, *Fam. Med.* 41 (5) (2009) 316–318.
- [25] S. Ventura, A. Onsmann, The use of popular movies during lectures to aid the teaching and learning of undergraduate pharmacology, *Med. Teach.* 31 (7) (2009) 662–664.